

Claims.

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1.- An improved adjustable convergence device for adjusting the position of a pixel light modulator of a projector comprising at least two such light modulators mounted on the frame of the projector, said convergence device comprising a plate assembly which is fixed on said supporting frame and which supports the light modulator to be adjusted, wherein said plate assembly is composed of at least two plate elements, respectively a plate element which is fixed to the supporting frame and a plate element on which the light modulator is fixed, whereby these plate elements are connected to each other by means of at least one elastic joint and whereby at least first self-locking adjusting means are provided for transmitting a force in an adjusting direction between these plate elements in order to adjust the relative position between said plate elements.

2.- The improved adjustable convergence device according to claim 1, wherein each of the adjusting means comprise an actuator bridging the plate elements.

3.- The improved adjustable convergence device according to claim 2, wherein each of the actuators is a plunger mechanism with a plunger block which is fixed to one plate element and which is provided with a passage directed following the adjustment direction of the concerned adjusting means and serving as a guide for a plunger which is slidably mounted in this passage, and which is in

connection with the other plate element.

4.- The improved adjustable convergence device according to claim 3, wherein each of the actuators comprise a differential adjusting screw with two threaded parts, the two parts having a different pitch, one part cooperating with a threaded part of the passage in the plunger block, the other part cooperating with a threaded hole in the plunger or vice versa.

5.- The improved adjustable convergence device according to claim 2, wherein the adjusting means are formed by one actuator parallel or nearly parallel to the longitudinal or transverse symmetry axis of the light modulator.

6.- The improved adjustable convergence device according to claim 5, wherein the actuator is located at a distance from the longitudinal or the transverse symmetry axis of the light modulator.

7.- The improved adjustable convergence device according to claim 2, wherein the adjusting means are formed by two actuators parallel or nearly parallel to the longitudinal or transverse symmetry axis of the light modulator and located on both sides of the particular axis and at a distance thereof.

8.- The improved adjustable convergence device according to claim 4, wherein the engine composed of the frame and the light modulators is provided in a sealed housing and whereby each adjusting screw of the plunger mechanisms has

an elongated part with an extremity protruding from the housing through an hermetically sealed passage in said housing.

9.- The improved adjustable convergence device according to claim 8, wherein the elongated part is formed by a flexible tube.

10.- The improved adjustable convergence device according to claim 1, wherein each of the elastic joints connecting the plate elements are formed by an arm which is pivotably attached at each of its extremities to each of the concerned plate elements.

11.- The improved adjustable convergence device according to claim 10, wherein the arms of the elastic joints have a bent form, preferably a U-shaped form, with at least one bend and two linear segments.

12.- The improved adjustable convergence device according to claim 11, wherein the linear segments of the arms are directed transversely to the adjusting direction, this to obtain intuitive adjustments on the screen.

13.- The improved adjustable convergence device according to claim 12, wherein the plate elements are connected to each other by means of at least three arms, preferably four arms, with respect to the light modulator.

14.- The improved adjustable convergence device according to claim 13, wherein at least one arm has stiffer linear

segments than the other arms, this to enhance rotational capability.

15.- The improved adjustable convergence device according to claim 13, wherein, amongst the U-shaped arms, at least two arms at opposite sides of the light modulator have shorter linear segments.

16.- The improved adjustable convergence device according to claim 10, wherein the plate assembly is formed out of a single plate which is provided with grooves separating these plate elements and the arms of the plate assembly, leaving a connection between the plate elements and the arms at the extremities of the arms.

17.- The improved adjustable convergence device according to claim 16, wherein the outer grooves surrounding the arms diverge at their ends located at the extremities of the arms.

18.- The improved adjustable convergence device according to claim 1, wherein the plate assembly is composed of at least three plate elements, respectively a first plate element which is fixed to the supporting frame, a second plate element on which the light modulator is being fixed, and a third intermediate plate element which is connected to each of the first and second plate elements by means of at least one elastic joint and whereby first self-locking adjusting means are provided for transmitting a force in a first adjusting direction between the first and the intermediate plate elements, and in turn a second self-

locking adjusting means for transmitting a force in a second adjusting direction between the intermediate and the second plate elements.

19.- The improved adjustable convergence device according to claim 18, wherein the first and second adjusting directions are directed in the longitudinal and transverse directions of the light modulator.

20.- The improved adjustable convergence device according to claim 18, wherein the elastic joints are formed by bent arms, whereby the linear segments of the arms connecting the first plate element to the intermediate element are directed transversely to the first adjusting direction, whilst the linear segments of the arms connecting the intermediate and second plate elements are directed transversely to the second adjusting direction.

21.- A projector comprising a housing, at least two pixel light modulators and at least one adjustable convergence device with adjusting means, whereby the adjusting means are accessible from the outside of the housing.

22.- An engine comprising at least a frame, at least two light modulators and at least one adjustable convergence device according to any of the preceding claims.

23.- The engine according to claim 22, wherein three light modulators are mounted on a frame and whereby one light modulator is fixed to the frame, while each other light modulator is fixed on an adjustable convergence device

which is fixed to the frame.